January 1995

Test 1697: Agco Allis 9635 Diesel 18-Speed

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NEBRASKA OECD TRACTOR TEST 1697—SUMMARY 185
AGCO ALLIS 9635 DIESEL
18 SPEED

Location of Test: Tractor Testing Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of Test: September 15-27, 1995

Manufacturer: AGCO Corporation, Duluth, Georgia 30136

FUEL OIL and TIME: Fuel No. 2 Diesel **Cetane No.** 50.6 **Specific gravity converted to 60°/60° F *(15°/15°C)*** 0.8435 **Fuel weight** 7.023 lbs/gal *(0.842 kg/l)* **Oil SAE** 15W-40 **API service classification** CD-II, CG **To motor** 5.429 gal *(20.551 l)* **Drained from motor** 5.190 gal *(19.647 l)* **Transmission and hydraulic lubricant** AGCO Power Fluid 821XL **Front axle lubricant** AGCO Gear Lube 715 SAE 80W-90 **Total time engine was operated** 24.0 hours.

ENGINE: Make Detroit Diesel series 40 Diesel **Type** six cylinder vertical with turbocharger **Serial No.** *WF3327N0952217* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** (as specified) 4.30" × 5.35" *(109.2 mm × 135.9 mm)* **Compression ratio** 15.8 to 1 **Displacement** 466 cu in *(7600 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and final drive oil, radiator for transmission oil **Fuel filter** two paper elements **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat

ENGINE OPERATING PARAMETERS: Fuel rate: 56.7-62.6 lb/h *(25.7-28.4 kg/h)* **High idle:** 2325-2425 rpm **Turbo boost** nominal 15.7 psi *(108 kPa)* as measured 15.0 psi *(103 kPa)*

CHASSIS: Type front wheel assist **Serial No.** 932003PL **Tread width** rear 62.0" *(1574 mm)* to 124.0" *(3150 mm)* front 62.6" *(1590 mm)* to 88.6" *(2250 mm)* **Wheel base** 116.0" *(2946 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.57 *(2.53)* second 1.86 *(2.99)* third 2.17 *(3.50)* fourth 2.49 *(4.00)* fifth 2.94 *(4.73)* sixth 3.44 *(5.54)* seventh 4.05 *(6.52)* eighth 4.78 *(7.70)* ninth 5.60 *(9.01)* tenth 6.51 *(10.47)* eleventh 7.69 *(12.37)* twelfth 8.99 *(14.47)* thirteenth 10.30 *(16.58)* fourteenth 12.18 *(19.60)* fifteenth 14.25 *(22.93)* sixteenth 16.77 *(26.99)* seventeenth 19.82 *(31.90)* eighteenth 23.20 *(37.33)* reverse 1.90 *(3.06)*, 2.25 *(3.62)*, 2.63 *(4.24)*, 3.02 *(4.86)*, 3.57 *(5.74)*, 4.17 *(6.71)*, 4.91 *(7.90)*, 5.80 *(9.34)*, 6.79 *(10.93)* **Clutch** multiple wet disc electro-hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2228 engine rpm and 1000 rpm at 2200 engine rpm **Unladen tractor mass** 17478 lb *(7928 kg)*

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed (PTO speed–1001 rpm)					
135.50 *(101.04)*	2200	8.77 *(33.19)*	0.454 *(0.276)*	15.46 *(3.04)*	
Maximum Power (2 hours)					
141.63 *(105.62)*	1850	8.48 *(32.08)*	0.420 *(0.256)*	16.71 *(3.29)*	
VARYING POWER AND FUEL CONSUMPTION					
135.50 *(101.04)*	2200	8.77 *(33.19)*	0.454 *(0.276)*	15.46 *(3.04)*	Air temperature
117.15 *(87.36)*	2236	7.95 *(30.08)*	0.476 *(0.290)*	14.74 *(2.90)*	83°F *(28°C)*
89.17 *(66.49)*	2274	6.71 *(25.39)*	0.528 *(0.321)*	13.30 *(2.62)*	Relative humidity
60.53 *(45.14)*	2309	5.51 *(20.86)*	0.639 *(0.389)*	10.99 *(2.16)*	65%
30.42 *(22.68)*	2340	4.31 *(16.33)*	0.996 *(0.606)*	7.05 *(1.39)*	Barometer
2.05 *(1.53)*	2365	3.20 *(12.13)*	10.983 *(6.680)*	0.64 *(0.13)*	28.89"Hg *(97.83 kPa)*

Maximum Torque 441 lb.-ft. *(597 Nm)* at 1550 rpm
Maximum Torque Rise 36.1%
Torque rise at 1798 engine rpm 27%

DRAWBAR PERFORMANCE (UNBALLASTED—FRONT DRIVE ENGAGED)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F (°C) cool-ing	Temp.°F (°C) Air dry	Temp.°F (°C) med	Barom. inch Hg *(kPa)*
Maximum Power—10th Gear										
112.29 *(83.73)*	6548 *(29.13)*	6.43 *(10.35)*	2195	2.19	0.544 *(0.331)*	12.90 *(2.54)*	192 *(89)*	74 *(23)*		28.78 *(97.46)*
75% of Pull at Maximum Power—10th Gear										
86.96 *(64.85)*	4910 *(21.84)*	6.64 *(10.69)*	2254	1.57	0.605 *(0.368)*	11.61 *(2.29)*	189 *(87)*	79 *(26)*		28.77 *(97.43)*
50% of Pull at Maximum Power—10th Gear										
59.07 *(44.05)*	3272 *(14.55)*	6.77 *(10.89)*	2286	1.21	0.738 *(0.449)*	9.51 *(1.87)*	187 *(86)*	79 *(26)*		28.77 *(97.43)*
75% of Pull at Reduced Engine Speed—12th Gear										
87.19 *(65.02)*	4913 *(21.85)*	6.66 *(10.71)*	1633	1.57	0.528 *(0.321)*	13.30 *(2.62)*	193 *(89)*	80 *(27)*		28.76 *(97.39)*
50% of Pull at Reduced Engine Speed—12th Gear										
59.29 *(44.21)*	3276 *(14.57)*	6.79 *(10.93)*	1657	1.21	0.592 *(0.360)*	11.86 *(2.34)*	185 *(85)*	80 *(27)*		28.76 *(97.39)*

DRAWBAR PERFORMANCE
(UNBALLASTED—FRONT DRIVE ENGAGED)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F (°C) cool-ing med	Temp.°F (°C) Air dry bulb	Barom. inch Hg *(kPa)*
				4th Gear					
102.03	17347	2.21	2226	13.59	0.598	11.74	185	54	28.82
(76.08)	*(77.16)*	*(3.55)*			*(0.364)*	*(2.31)*	*(85)*	*(12)*	*(97.60)*
				5th Gear					
112.19	16265	2.59	2092	8.72	0.539	13.02	186	56	28.79
(83.66)	*(72.35)*	*(4.16)*			*(0.328)*	*(2.57)*	*(86)*	*(13)*	*(97.49)*
				6th Gear					
115.34	15179	2.85	1941	7.23	0.515	13.63	188	60	28.78
(86.01)	*(67.52)*	*(4.59)*			*(0.313)*	*(2.69)*	*(87)*	*(16)*	*(97.46)*
				7th Gear					
118.55	13644	3.26	1851	5.61	0.498	14.11	191	61	28.79
(88.41)	*(60.69)*	*(5.24)*			*(0.303)*	*(2.78)*	*(88)*	*(16)*	*(97.49)*
				8th Gear					
117.44	11280	3.90	1846	4.10	0.500	14.04	194	63	28.80
(87.57)	*(50.18)*	*(6.28)*			*(0.304)*	*(2.77)*	*(90)*	*(17)*	*(97.53)*
				9th Gear					
115.25	9359	4.62	1850	3.24	0.512	13.72	193	69	28.80
(85.94)	*(41.63)*	*(7.43)*			*(0.311)*	*(2.70)*	*(89)*	*(21)*	*(97.53)*
				10th Gear					
120.43	8390	5.38	1849	2.90	0.493	14.24	195	72	28.90
(89.80)	*(37.32)*	*(8.66)*			*(0.300)*	*(2.81)*	*(90)*	*(22)*	*(97.53)*
				11th Gear					
119.69	7010	6.40	1852	2.46	0.494	14.21	197	70	28.78
(89.25)	*(31.18)*	*(10.30)*			*(0.301)*	*(2.80)*	*(92)*	*(21)*	*(97.46)*
				12th Gear					
116.16	5796	7.52	1850	2.01	0.512	13.71	197	72	28.78
(86.62)	*(25.78)*	*(12.10)*			*(0.312)*	*(2.70)*	*(92)*	*(22)*	*(97.46)*
				13th Gear					
113.57	4946	8.61	1845	1.66	0.520	13.49	193	73	28.78
(84.69)	*(22.00)*	*(13.86)*			*(0.317)*	*(2.66)*	*(89)*	*(23)*	*(97.46)*

DRAWBAR PERFORMANCE
(BALLASTED—FRONT DRIVE ENGAGED)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F (°C) cool-ing med	Temp.°F (°C) Air dry bulb	Barom. inch Hg *(kPa)*
				3rd Gear					
107.32	20619	1.95	2199	11.50	0.577	12.17	184	49	29.32
(80.03)	*(91.72)*	*(3.14)*			*(0.351)*	*(2.40)*	*(84)*	*(9)*	*(99.29)*
				4th Gear					
114.12	19560	2.19	2069	8.09	0.531	13.21	186	49	29.32
(85.10)	*(87.00)*	*(3.52)*			*(0.323)*	*(2.60)*	*(85)*	*(9)*	*(99.29)*
				5th Gear					
118.61	18718	2.38	1887	7.46	0.501	14.01	187	50	29.32
(88.45)	*(83.26)*	*(3.82)*			*(0.305)*	*(2.76)*	*(86)*	*(10)*	*(99.29)*
				6th Gear					
120.70	16265	2.78	1851	5.59	0.493	14.24	188	51	29.32
(90.00)	*(72.35)*	*(4.48)*			*(0.300)*	*(2.81)*	*(86)*	*(11)*	*(99.29)*
				7th Gear					
122.62	13861	3.32	1851	4.33	0.486	14.46	188	52	29.31
(91.44)	*(61.65)*	*(5.34)*			*(0.295)*	*(2.85)*	*(86)*	*(11)*	*(99.26)*
				8th Gear					
120.67	11472	3.94	1846	3.38	0.492	14.28	188	52	29.31
(89.98)	*(51.03)*	*(6.35)*			*(0.299)*	*(2.81)*	*(86)*	*(11)*	*(99.26)*
				9th Gear					
118.18	9504	4.66	1853	2.86	0.504	13.93	188	52	29.32
(88.13)	*(42.27)*	*(7.50)*			*(0.307)*	*(2.74)*	*(87)*	*(11)*	*(99.29)*
				10th Gear					
122.82	8492	5.42	1850	2.60	0.483	14.55	188	52	29.32
(91.59)	*(37.77)*	*(8.73)*			*(0.294)*	*(2.87)*	*(86)*	*(11)*	*(99.29)*
				11th Gear					
122.59	7143	6.44	1850	2.15	0.482	14.56	188	52	29.33
(91.42)	*(31.77)*	*(10.36)*			*(0.293)*	*(2.87)*	*(86)*	*(11)*	*(99.33)*
				12th Gear					
118.60	5881	7.56	1851	1.89	0.498	14.09	188	52	29.32
(88.44)	*(26.16)*	*(12.17)*			*(0.303)*	*(2.78)*	*(86)*	*(11)*	*(99.29)*
				13th Gear					
115.88	5027	8.64	1844	1.62	0.512	13.72	188	52	29.31
(86.41)	*(22.36)*	*(13.91)*			*(0.311)*	*(2.70)*	*(87)*	*(11)*	*(99.26)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 138° F *(59°C)*. This tractor did not meet manufacturers claim of 22 GPM *(83 l/m)* hydraulic flow or 3 point lift capacity of 7212 lbs *(3271 kg)*. The pull in 3rd gear (ballasted—front drive engaged) was limited to avoid excessive tractor bouncing. The performance results on this summary were taken from OECD tests conducted under the Code II Restricted Standard Test Code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1697**, Summary 185, December 20, 1995.

LOUIS I. LEVITICUS
Engineer-in-Charge

L.L. BASHFORD
K. VON BARGEN
M.F. KOCHER
Board of Tractor Test Engineers

DRAWBAR PERFORMANCE
(BALLASTED—FRONT DRIVE DISENGAGED)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F (°C) cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—7th Gear									
113.74 *(84.81)*	10792 *(48.01)*	3.95 *(6.36)*	2201	3.87	0.539 *(0.328)*	13.02 *(2.56)*	187 *(86)*	52 *(11)*	29.25 *(99.05)*
75% of Pull at Maximum Power—7th Gear									
88.39 *(65.92)*	8090 *(35.98)*	4.10 *(6.59)*	2259	2.83	0.602 *(0.366)*	11.66 *(2.30)*	185 *(85)*	57 *(14)*	29.15 *(98.71)*
50% of Pull at Maximum Power—7th Gear									
60.45 *(45.08)*	5388 *(23.96)*	4.21 *(6.77)*	2299	1.95	0.735 *(0.447)*	9.55 *(1.88)*	183 *(84)*	57 *(14)*	29.15 *(98.71)*
75% of Pull at Reduced Engine Speed—9th Gear									
88.39 *(65.91)*	8089 *(35.98)*	4.10 *(6.59)*	1633	2.74	0.514 *(0.313)*	13.66 *(2.69)*	186 *(85)*	57 *(14)*	29.15 *(98.71)*
50% of Pull at Reduced Engine Speed—9th Gear									
60.51 *(45.12)*	5379 *(23.93)*	4.22 *(6.79)*	1667	1.86	0.582 *(0.354)*	12.08 *(2.38)*	183 *(84)*	57 *(14)*	29.15 *(98.71)*

MAXIMUM POWER IN SELECTED GEARS

4th Gear									
104.26 *(77.75)*	17679 *(78.64)*	2.21 *(3.56)*	2223	13.21	0.594 *(0.361)*	11.83 *(2.33)*	185 *(85)*	48 *(9)*	29.27 *(99.12)*
5th Gear									
113.51 *(84.65)*	16623 *(73.94)*	2.56 *(4.12)*	2057	7.96	0.530 *(0.322)*	13.25 *(2.61)*	187 *(86)*	51 *(11)*	29.27 *(99.12)*
6th Gear									
117.26 *(87.44)*	15926 *(70.84)*	2.76 *(4.44)*	1880	7.41	0.506 *(0.308)*	13.88 *(2.73)*	188 *(86)*	51 *(11)*	29.26 *(99.09)*
7th Gear									
121.30 *(90.45)*	13937 *(61.99)*	3.26 *(5.25)*	1849	5.30	0.489 *(0.297)*	14.37 *(2.83)*	188 *(86)*	52 *(11)*	29.24 *(99.02)*
8th Gear									
120.07 *(89.53)*	11511 *(51.20)*	3.91 *(6.30)*	1850	4.12	0.499 *(0.303)*	14.08 *(2.77)*	188 *(86)*	52 *(11)*	29.22 *(98.95)*
9th Gear									
117.61 *(87.70)*	9538 *(42.42)*	4.62 *(7.44)*	1854	3.35	0.507 *(0.308)*	13.86 *(2.73)*	188 *(86)*	53 *(12)*	29.20 *(98.88)*
10th Gear									
122.37 *(91.25)*	8524 *(37.92)*	5.38 *(8.66)*	1851	2.92	0.483 *(0.294)*	14.54 *(2.86)*	188 *(87)*	54 *(12)*	29.19 *(98.85)*
11th Gear									
122.00 *(90.97)*	7158 *(31.84)*	6.39 *(10.29)*	1850	2.57	0.490 *(0.298)*	14.34 *(2.83)*	189 *(87)*	56 *(13)*	29.18 *(98.82)*
12th Gear									
118.48 *(88.35)*	5914 *(26.30)*	7.51 *(12.09)*	1851	2.04	0.502 *(0.306)*	13.98 *(2.75)*	189 *(87)*	56 *(13)*	29.17 *(98.78)*
13th Gear									
115.71 *(86.29)*	5025 *(22.35)*	8.64 *(13.90)*	1852	1.77	0.512 *(0.312)*	13.71 *(2.70)*	188 *(87)*	56 *(13)*	29.16 *(98.75)*

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At 75% load in 7th gear	77.5
Bystander	—

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires—No., size, ply & psi *(kPa)*	Four 18.4R42; **; 20 *(140)*	Two 18.4R42; **, 20 *(140)*
Ballast—Duals (total)	1680 lb *(762 kg)*	None
—Test Equip. (total)	100 lb *(45 kg)*	None
Front Tires—No., size, ply & psi *(kPa)*	Two 16.9R28; **; 24 *(165)*	Two 16.9R28; **; 24 *(165)*
Ballast—Liquid (total)	None	None
—Cast Iron (total)	18 lb *(8 kg)*	None
Height of Drawbar	23.5 in *(595 mm)*	22.5 in *(570 mm)*
Static Weight with Operator—Rear	13324 lb *(6044 kg)*	11544 lb *(5236 kg)*
—Front	6118 lb *(2775 kg)*	6100 lb *(2767 kg)*
—Total	19442 lb *(8819 kg)*	17644 lb *(8003 kg)*

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III
Quick Attach: None

Maximum Force Exerted Through Whole Range:	5913 lbs	*(26.3 kN)*
	6962 lbs	*(31.0 kN)* with (1) lift assist cylinder
i) Opening pressure of relief valve:	NA	
Sustained pressure with pump stalled:	2280 psi	*(157 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	19.8 GPM	*(75.0 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	17.2 GPM	*(65.1 l/min)*
Delivery pressure:	2040 psi	*(141 bar)*
Power:	20.5 HP	*(15.3 kW)*

The following values apply to tractors with chassis S/N 932300 and higher.

THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III
Quick Attach: no

Maximum Force Exerted Through Whole Range:	5220 lbs	*(23.2 kN)*
	7146 lbs	*(31.8 kN)* (with two lift assist cylinders)

THREE POINT LIFT PERFORMANCE

Observed Maximum Pressure psi. *(bar)*	2275 *(157)*
Location	lift cylinder
Hydraulic oil temperature °F *(°C)*	149 *(65)*
Location	hydraulic sump
Category	III
Quick attach	no

As per current SAE test procedures

Hitch point distance to ground level in.	8.0	13.3	18.6	24.0	29.3	34.7	40.0
to ground level *(mm)*	*(203)*	*(338)*	*(472)*	*(610)*	*(744)*	*(881)*	*(1016)*
Lift force on frame lb.	6804	6498	6966	6984	6660	6786	6606
Lift force on frame *(kN)*	*(30.3)*	*(28.9)*	*(31.0)*	*(31.1)*	*(29.6)*	*(30.2)*	*(29.4)*

with 2 lift assist cylinders

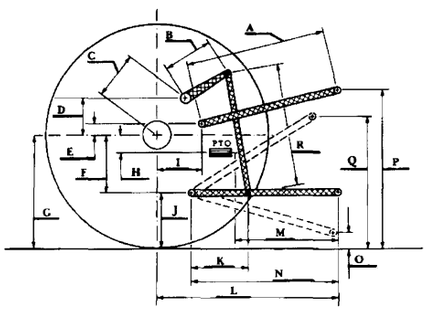
Hitch point distance to ground level in.	8.0	13.3	18.6	24.0	29.3	34.7	40.0
to ground level *(mm)*	*(203)*	*(338)*	*(472)*	*(610)*	*(744)*	*(881)*	*(1016)*
Lift force on frame lb	9558	8964	9198.	9126	9000	8298	8244
Lift force one frame *(kN)*	*(42.5)*	*(39.9)*	*(40.9)*	*(40.6)*	*(40.0)*	*(36.9)*	*(36.7)*

As per current ASAE test procedures

Hitch point distance to ground level in.	8.0	13.3	18.6	24.0	29.3	34.7	40.0
to ground level *(mm)*	*(203)*	*(338)*	*(472)*	*(610)*	*(744)*	*(881)*	*(1016)*
Lift force on frame lb.	7311	6982	7568	7760	7485	7372	7098
Lift force on frame *(kN)*	*(32.5)*	*(31.1)*	*(33.7)*	*(34.5)*	*(33.3)*	*(32.8)*	*(31.6)*

with 2 lift assist cylinders

Hitch point distance to ground level in.	8.0	13.3	18.6	24.0	29.3	34.7	40.0
to ground level *(mm)*	*(203)*	*(338)*	*(472)*	*(610)*	*(744)*	*(881)*	*(1016)*
Lift force on frame lb.	10270	9527	9883	9806	9735	9220	8858
Lift force on frame *(kN)*	*(45.7)*	*(42.4)*	*(44.0)*	*(43.6)*	*(43.3)*	*(41.0)*	*(39.4)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	25.3	*641*
B	16.0	*406*
C	19.8	*502*
D	18.2	*461*
E	9.1	*230*
F	10.2	*259*
G	35.0	*889*
H	1.9	*48*
I	20.1	*508*
J	24.8	*630*
K	21.4	*543*
L	45.3	*1150*
M	22.4	*568*
N	34.8	*884*
O	9.0	*229*
P	51.8	*1316*
Q	38.3	*972*
R	38.7	*983*

AGCO ALLIS 9635 DIESEL

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